<u>Amendments to the Claims</u>

In compliance with the Revised Amendment Format, a complete listing of claims is provided herein.

1.   (Currently Amended) A method for arranging operations performable on message streams in a message processing system by a first operation sequence between two nodes in the system, the first operation sequence having a first select operation followed by a second select operation, the method comprising:

converting the first operation sequence into a second, equivalent operation sequence comprising a single select operation, wherein the single select operation comprises determining whether input data satisfies one or more criteria.

2.   (Original) The method of claim 1, wherein the first operation sequence further comprises a first transform operation, followed by a second transform operation, and wherein the second, equivalent operation sequence comprises a single transform operation.

3.   (Original) A method for reorganizing message processing operations in a message processing system comprising using the arranging method of claim 1.

4.   (Original) The method of claim 3, wherein said reorganizing is facilitated by an automated processing system.

5.   (Original) A method for arranging an information flow graph descriptive of message processing operations for a method processing system, comprising using the arranging method of claim 1 on said information flow graph.

6.   (Original) The method of claim 5, wherein said method for arranging the information flow graph is performed on an automated processing system, and wherein the information flow graph comprises information tangibly stored on media in said automated processing system.

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7.   (Original) The method of claim 1, wherein said converting comprises:

reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

8.   (Currently Amended) A method for arranging operations performable on message streams in a message processing system by a first operation sequence between two nodes of the system, the first operation sequence having a first transform operation followed by a second transform operation, the method comprising:

converting the first operation sequence into a second, equivalent operation sequence comprising a single transform operation, wherein the single transform operation comprises transforming according to a mathematical formula.

9.   (Original) The method of claim 8, wherein the first operation sequence further comprises a first select operation, followed by a second select operation, and wherein the second, equivalent operation sequence comprises a single select operation.

10.   (Original) A method for reorganizing message processing operations in a message processing system comprising using the arranging method of claim 8.

11.   (Original) The method of claim 10, wherein said reorganizing is facilitated by an automated processing system.

12.   (Original) A method for arranging an information flow graph descriptive of message processing operations for a method processing system, comprising using the arranging method of claim 8 on said information flow graph.

13.   (Original) The method of claim 12, wherein said method for arranging the information flow graph is performed on an automated processing system, and wherein the information flow graph comprises information tangibly stored on media in said automated processing system.

14.   (Original) The method of claim 8, wherein said converting comprises:

reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

15.   (Original) A method for arranging operations performable on information in an information processing system, the information processing system having a plurality of information producers and a plurality of information subscribers, the method comprising:

identifying respective sequences of select and transform operations required on information between at least some information producer/subscriber pairs;

converting each respective sequence identified into an equivalent sequence, including:

pushing select operations ahead of transform operations in each said equivalent sequence, and

combining any sequential select operations and any sequential transform operations in each said equivalent sequence;

wherein each said equivalent sequence comprises a single select operation followed by a single transform operation.

16.   (Original) The method of claim 15, further comprising:

rearranging processing resources within said information processing system to accommodate each said equivalent sequence.

17.   (Original) The method of claim 15, further comprising:

employing a content-based routing system to perform the single select operation of at least one equivalent sequence.

18.   (Original) The method of claim 15, further comprising prior to said converting:

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adding exterior nodes, and paths thereto, from respective interior nodes, to accommodate future information production to, or subscription from, said respective interior nodes.

19.   (Original) A method for reorganizing message processing operations in a message processing system comprising using the arranging method of claim 15.

20.   (Original) The method of claim 19, wherein said reorganizing is facilitated by an automated processing system.

21.   (Original) A method for arranging an information flow graph descriptive of message processing operations for a method processing system comprising using the arranging method of claim 15 on said information flow graph.

22.   (Original) The method of claim 21, wherein said method for arranging the information flow graph is performed on an automated processing system, and wherein the information flow graph comprises information tangibly stored on media in said automated processing system.

23.   (Original) The method of claim 15, wherein said converting comprises:

reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

24.   (Currently Amended) A system for arranging operations performable on message streams in a message processing system ~~by a first operation sequence between two nodes in the system, the first operation sequence having a first select operation followed by a second select operation~~, the system comprising:

a first node and a second node, wherein a first operation sequence between the first node and the second node comprises a first select operation followed by a second select operation; and

means for converting the first operation sequence into a second, equivalent operation sequence comprising a single select operation, wherein the single select operation comprises determining whether input data satisfies one or more criteria.

25.   (Original) The system of claim 24, wherein the first operation sequence further comprises a first transform operation, followed by a second transform operation, and wherein the second, equivalent operation sequence comprises a single transform operation.

26.   (Original) The system of claim 24, wherein said means for converting comprises:

means for reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

27.   (Currently Amended) A system for arranging operations performable on message streams in a message processing system ~~by a first operation sequence between two nodes of the system, the first operation sequence having a first transform operation followed by a second transform operation~~, the system comprising:

a first node and a second node, wherein a first operation sequence between the first node and the second node comprises a first transform operation followed by a second transform operation; and

means for converting the first operation sequence into a second, equivalent operation sequence comprising a single transform operation, wherein the single transform operation comprises transforming according to a mathematical formula.

28.   (Original) The system of claim 27, wherein the first operation sequence further comprises a first select operation, followed by a second select operation, and wherein the second, equivalent operation sequence comprises a single select operation.

29.   (Original) The system of claim 27, wherein said means for converting comprises:

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means for reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

30.   (Original) A system for arranging operations performable on information in an information processing system, the information processing system having a plurality of information producers and a plurality of information subscribers, the system comprising:

means for identifying respective sequences of select and transform operations required on information between at least some information producer/subscriber pairs;

means for converting each respective sequence identified into an equivalent sequence, including:

means for pushing select operations ahead of transform operations in each said equivalent sequence, and

means for combining any sequential select operations and any sequential transform operations in each said equivalent sequence;

wherein each said equivalent sequence comprises a single select operation followed by a single transform operation.

31.   (Original) The system of claim 30, further comprising:

means for rearranging processing resources within said information processing system to accommodate each said equivalent sequence.

32.   (Original) The system of claim 30, further comprising:

means for employing a content-based routing system to perform the single select operation of at least one equivalent sequence.

33.   (Original) The system of claim 30, further comprising prior to said converting:

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means for adding exterior nodes, and paths thereto, from respective interior nodes, to accommodate future information production to, or subscription from, said respective interior nodes.

34.   (Original) The system of claim 30, wherein said means for converting comprises:

means for reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

35.   (Currently Amended) An article of manufacture comprising a computer useable medium having computer readable program code means embodied therein for arranging operations performable on message streams in a message processing system by a first operation sequence between two nodes in the system, the first operation sequence having a transform operation followed by a select operation, the article of manufacture comprising:

a computer useable medium having computer readable program code means embodied therein for arranging operations performable on message streams in a message processing system by a first operation sequence between two nodes in the system, the first operation sequence having a transform operation followed by a select operation; and

computer readable program code means for converting the first operation sequence into a second, equivalent operation sequence comprising a select operation followed by a transform operation, wherein the select operation comprises determining whether input data satisfies one or more criteria.

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36.   (Original) The article of manufacture of claim 35, wherein the first operation sequence comprises a plurality of transform operations and a plurality of select operations and wherein the second, equivalent operation sequence comprises a plurality of select operations followed by a plurality of transform operations.

37.   (Original) The article of manufacture of claim 36, wherein said code means for converting comprises:

computer readable program code means for combining the plurality of select operations into a single, equivalent select operation; and

computer readable program code means for combining the plurality of transform operations into a single, equivalent transform operation,

whereby the second, equivalent operation sequence comprises the single, equivalent select operation followed by the single, equivalent transform operation.

38.   (Original) The article of manufacture of claim 35, wherein said code means for converting comprises:

computer readable program code means for reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

39.   (Currently Amended) An article of manufacture ~~comprising a computer-useable medium having computer readable program code means embodied therein for arranging operations performable on message streams in a message processing system by a first operation sequence between two nodes in the system, the first operation sequence having a first select operation followed by a second select operation, the article of manufacture~~ comprising:

a computer useable medium having computer readable program code means embodied therein for arranging operations performable on message streams in a message processing system by a first operation sequence between two nodes in the system, the

<u>first operation sequence having a first select operation followed by a second select operation; and</u>

computer readable program code means for converting the first operation sequence into a second, equivalent operation sequence comprising a single select operation, <u>wherein the single select operation comprises determining whether input data satisfies one or more criteria</u>.

40.   (Original) The article of manufacture of claim 39, wherein the first operation sequence further comprises a first transform operation, followed by a second transform operation, and wherein the second, equivalent operation sequence comprises a single transform operation.

41.   (Original) The article of manufacture of claim 39, wherein said code means for converting comprises:

computer readable program code means for reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

42.   (Currently Amended) An article of manufacture ~~comprising a computer useable medium having computer readable program code means embodied therein for arranging operations performable on message streams in a message processing system by a first operation sequence between two nodes of the system, the first operation sequence having a first transform operation followed by a second transform operation, the article of manufacture~~ comprising:

<u>a computer useable medium having computer readable program code means embodied therein for arranging operations performable on message streams in a message processing system by a first operation sequence between two nodes of the system, the first operation sequence having a first transform operation followed by a second transform operation; and</u>

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computer readable program code means for converting the first operation sequence into a second, equivalent operation sequence comprising a single transform operation, wherein the single transform operation comprises transforming according to a mathematical formula.

43.   (Original) The article of manufacture of claim 42, wherein the first operation sequence further comprises a first select operation, followed by a second select operation, and wherein the second, equivalent operation sequence comprises a single select operation.

44.   (Original) The article of manufacture of claim 42, wherein said code means for converting comprises:

computer readable program code means for reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

45.   (Original) An article of manufacture comprising a computer useable medium having computer readable program code means embodied therein for arranging operations performable on information in an information processing system, the information processing system having a plurality of information producers and a plurality of information subscribers, the article of manufacture comprising:

computer readable program code means for identifying respective sequences of select and transform operations required on information between at least some information producer/subscriber pairs;

computer readable program code means for converting each respective sequence identified into an equivalent sequence, including:

computer readable program code means for pushing select operations ahead of transform operations in each said equivalent sequence, and

computer readable program code means for combining any sequential select operations and any sequential transform operations in each said equivalent sequence;

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wherein each said equivalent sequence comprises a single select operation followed by a single transform operation.

46.   (Original) The article of manufacture of claim 45, further comprising:

computer readable program code means for rearranging processing resources within said information processing system to accommodate each said equivalent sequence.

47.   (Original) The article of manufacture of claim 45, further comprising:

computer readable program code means for employing a content-based routing system to perform the single select operation of at least one equivalent sequence.

48.   (Original) The article of manufacture of claim 45, further comprising prior to said converting:

computer readable program code means for adding exterior nodes, and paths thereto, from respective interior nodes, to accommodate future information production to, or subscription from, said respective interior nodes.

49.   (Original) The article of manufacture of claim 45, wherein said code means for converting comprises:

computer readable program code means for reducing a number of calculations required to determine the second, equivalent operation sequence by storing results of any common subexpressions thereof and using said stored results instead of recalculating the common subexpressions.

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